PATENT ABSTRACTS OF JAPAN

(11) Publication number: 10229093 A

(43) Date of publication of application: 25.08.98

(51) Int. CI

H01L 21/322 C30B 33/02 H01L 21/205

(21) Application number: 09049709

(22) Date of filing: 17.02.97

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(54) PRODUCTION OF SILICON EPITAXIAL WAFER

(57) Abstract:

PROBLEM TO BE SOLVED: To exhibit sufficient gettering effect by cutting a silicon single crystal, where the carbon concentration is increased at a specified oxygen concentration, into a silicon water and annealing the silicon water at low temperature for a short time before growing an epitaxial film on the surface of the wafer mirror finished on the opposite sides.

SOLUTION: A silicon single crystal being pulled by

Czochralski method while controlling the oxygen concentration in the range of $12\text{-}18\times10^{17}$ atoms/cm³ and the carbon concentration in the range of $0.3\text{-}2.5\times10^{16}$ atoms/cm³ is cut into a silicon water which is then annealed at a temperature of $60\text{-}900^\circ\text{C}$ for 15 min-4 hour. Subsequently, one or both side of the silicon wafer is mirror finished and an epitaxial film is grown thereon. According to the method, sufficient gettering effect can be exhibited.

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